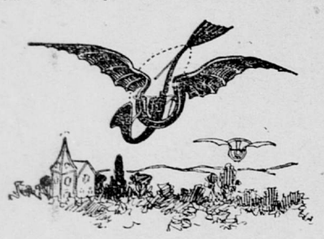
STRANGE SHIPS THAT SAIL IN THE SKIES.

This is the age of the airship. The evolution of the balloon to the flying machine is nearly complete, and it is not improbable that within a few years great aerial vessels for passenger service and monster engines of war and commerce will be seen sailing through space.

Recently the newspapers of the whole country have been exploiting stories of airships seen hovering over various towns and country places in districts very far apart. The testimony seems unimpeachable, especially in the face of so many witnesses, but certain details are always lacking to complete the evidence. Now it is a story of a wonderful vessel seen on the Pacific coast in the neighborhood of San Francisco or maybe Sacramento. Next a



TROUVE'S MECHANICAL BIRD.

report comes of one having been seen in Nebraska, or a farmer in some Iowa county reports seeing a bright light and moving object in the air on a dark night. Then the scene shifts, and a man or a score of men report seeing a wonderful what is it from some other remote quarter of the United States.

On the evening of Tuesday, Nov. 17, of last year many citizens of Sacramento were surprised by the sudden appearance directly over the city of a startling aerial craft. The peculiar night visitant made its appearance about 7 o'clock. People standing on the sidewalks saw coming through the sky over the house tops a huge and brilliant light propelled swiftly by some mysterious force. So brilliant was the light that as it flashed past suburban residences the inmates ran to their doors expecting to find a neighboring house in flames. Instead they saw a wonderful craft of the sky.

It swiftly drew near the city, sailing evenly to the southwest.

Then it dropped nearer the earth, but suddenly shot up into the air again, as if the force that whirled it through space were sensible to the danger of collision with objects on the earth.

So much hundreds of prominent residents of Sacramento saw, and it caused consternation in all parts of the city, where groups gathered at the corners until far into the night listening to the tale of those that had seen it.

On reaching the extreme end of the city the strange object, as if careless of its obligation to maintain a straightforward course, descended dangerously near the tall chimney of the electric railway power house, and an anxious voice was distinctly heard to exclaim:

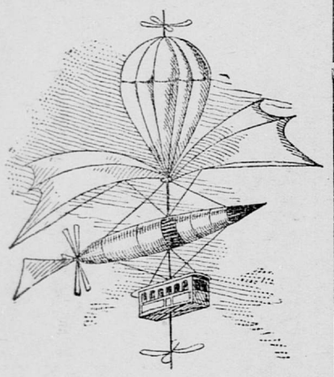
"Lift her up quick! We will hit the chimney!"

The startled employees of the car stables ran to the corner and discerned a wonderfully constructed oblong sphere, brilliantly illuminated and seemingly under perfect control.

Clearing the chimney, it quickly shot into the sky, as if obeying some mystic touch, and, ascending to a considerable height, continued on its southwesterly course and soon passed out of sight.

Experiences and scenes like the above have been reported almost daily ever since from different parts of the country, and one man, a farmer, claims to have in his possession a note dropped by the occupants of an airship on to his house.

Such things force the belief that the great problem of the age, the ability



THE CARL ERICKSON AIRSHIP.

to navigate the air, has at last been solved by man.

There has always been a species of warfare carried on among the different inventors of vessels to sail in the air ocean as to the lighter than air or heavier than air problem. One party believes in balloons, filled with some sort of gas, that rise because they are lighter than the surrounding atmosphere.

The other side won't have anything to do with them, but pins its faith to vessels that rise by means of sails, wings, fans or other contrivances in the manner of birds.

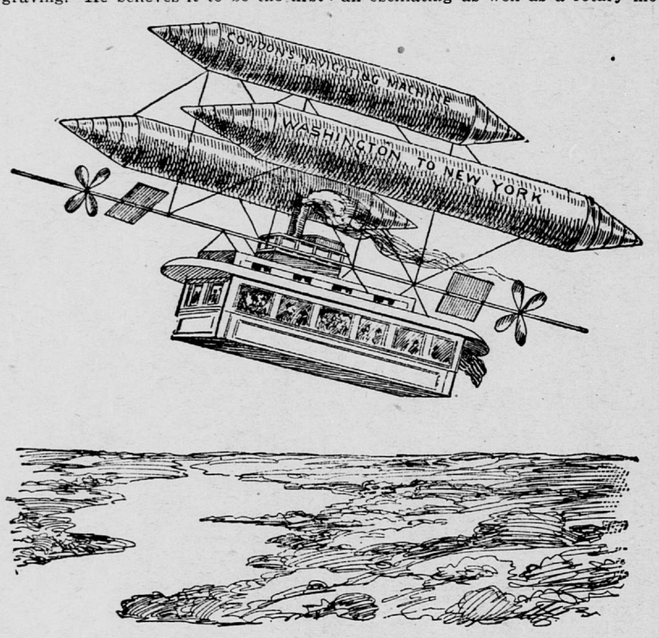
Arctic explorers have taken up the idea of reaching the pole by means of the air, but they always propose to make use of balloons.

Professor Andree's much talked of expedition that was to leave Spitzbergen last summer has not yet materialized, but the project has received a great boom from the fact that King Oscar of Sweden is behind an expedition which will be managed by the Andree party. It is scheduled to start from Spitzbergen about July 1.

One of the principal claims made for flying machines is that they would be useful in time of war. The aerodromists say they could fly over an enemy's country and drop dynamite and other explosives over his camp, but the machines would not be much more valuable for that purpose than balloons. The United States army has balloons prepared for such an emergency, but General Miles, the eminent commander, does not think that they would be much of a factor in case of war.

The problem of how to travel through the air is one that has been tackled for a very long time past, but especially so by Americans during the past quarter of a century. The patent office in Washington teems with the devices of anxious inventors who thought they had solved the great problem.

M. Gustave Trouve, the celebrated electrician and inventor, who had taken out up to the end of 1890 some 81 patents and who is frequently referred to as "the French Edison," has constructed several working models of flying machines. His latest mechanical bird, so far as is known, is shown in the engraving. He believes it to be the first



JAMES SLEDON COWDON'S INVENTION.

which has risen into the air by its own unaided force, and also that its explosion motor covers the principle which must become the primary base of all flying machines. The bird consists of two wings connected through a Bourdon bent tube, such as is used in steam gauges, the peculiarity of which is that when pressure increases within the tube its outer ends move apart and return toward each other upon diminished pressure. M. Trouve increases the efficiency of this action by putting a second tube within the first, and he produces therein a series of alternate compressions and expansions by exploding 12 cartridges contained in a revolver barrel, which communicates with the Bourdon tube. These explosions produce a series of strokes of the wings, which, with the aid of a silk sustaining plane, both support and propel the bird in the air.

This bird has flown 80 yards, and after its motive power is exhausted it flutters gently to the ground, the wings and silk body acting like a parachute. For practical flying machines M. Trouve proposes to derive most of the motive power from the atmosphere by taking up a supply of compressed hydrogen only. This when mixed with a due quantity of air forms an explosive mixture which he expects to use.

John Alfred Jonasson, a Norwegian sailor in whose brain the flying machine idea bided for some years, came out a couple of years ago with a model which he claimed would fly. Here is his description of his invention:

"There are two wings, each 16 feet long. They are oval in shape, and it is my intention to inflate them with gas. The lifting power of these wings will, I calculate, be sufficient to support my weight and the weight of the car. The wings follow the curve of the boat on the inner side and are attached to a mechanical device of my own invention which will enable me to move the wings as rapidly as I like. The rudder is built upon the plan of the tail of a bird and is 10 feet long and 8 feet in diameter at the outer edge. Between the rudder and body of the boat is a large canvas propeller having four blades, and there is an auxiliary propeller in the bow of the boat as large as the one in the stern, which can be used to propel the boat in one direction or can be worked against each other in case the rudder should be disabled.

"I can operate the rudder with my feet and the propellers and wings with my hands with no more effort than it would take to raise and lower my arms. The machine can be sent to any height desired to take advantage of any air current and lowered at will by simply stopping the machinery. When descending, the wings can be adjusted so that they will act like a parachute, and a descent can be made from any height in perfect safety. The proportions of the machine are all arranged in accordance with the sea gull's size and shape, and I have no doubt that it will fly like a bird."

Professor George Wellner of Vienna, who is a professor of engineering and machinery construction at the Technical High school of Brunn, has patented an airship which he is positive will sail and soar through space at the rate of 90 miles an hour without any trouble.

Professor Wellner has explained his airship as follows:

"My hope of its future success lies in the construction of the sail wheel. It was patented in England as 'a rotary sail for flying machines.' It is an invention of my own. The wheel works on a fixed eccentric, and the air blades attached to the spokes have thereby an oscillating as well as a rotary motion. When this air blade reaches the highest part of its circle and just when about to descend, the oscillation of the eccentric causes it to suck in the air and force it downward into the inside of the wheel.

"There are four blades to each wheel, and the canvas is stretched over them, giving the resemblance of a drum open at both ends. This is the main secret of the machine, this rotary oscillating blade motion that gives it support in the air and a rapid forward motion. The rest is mere detail.

"A small car, a compressed air engine, the steering gear and a crew composed of two individuals, a steersman and an engineer—these are the details. But this is for a flying machine of the smallest description. I have measurements for machines to carry also 4, 8, 16 and 20 persons. The latter number is, I think, the safe maximum, though greater calculations could still be carried out. For eight persons steam engines must be substituted of at least 200 horsepower. Sufficient for a primary trial, however, is the small flying machine to carry two persons."

The late Mr. Marriott of California spent thousands of dollars in perfecting his ship. It was built in a specially constructed building on his place. One summer day in 1869 he invited a number of his friends to go down to witness the trial trip. Judging by the skillful soaring of the model, there was no reason to suppose the big ship would not skim the empyrean like a lark on a pleasure tour. When everything was arranged, it was noted that the gentle breeze had increased perceptibly until it had become a northerly gale.

Mr. Marriott was confident and delighted, for the greater the wind the better the machine ought to travel once it rose above the tree tops.

When the roof doors of the airship's cage were opened, the tremendous bulk rose in good order. The engines were set to work, and the hawsers that held the colossal bird to earth were about to be loosed when a tremendous gust of wind took a hand in the proceedings. It tore the airship from its moorings. It dashed it madly over against a big oak tree. The silken covering and the delicate mechanism were ripped and torn. In a half minute that dastardly breeze destroyed the careful work of years. Mr. Marriott became discouraged. The wonderful craft was never rebuilt, and all further proceedings looking to the securing of a patent were abandoned.

One of the most remarkable of the recently invented airships was that designed by Carl Erickson and exhibited at the recent mechanics' fair in San Francisco. It combines the silk balloon, filled with hydrogen gas; the cylinder, containing the motive mechanism, and the balancing wings. Electricity is the propelling force. The propeller, made of aluminium, regulates the speed. The car, which carries 12 passengers, is made of aluminium and prepared paper. Underneath it are regulators to control the upward and downward flight.

One of the most startling of recent airships for which patents have been applied for at Washington is that of James Sledon Cowdon of Vienna, Fairfax county, Va. The claims which Mr. Cowdon makes for his invention are so astounding that to most people they will appear incredible, but he declares solemnly that he has actually solved the problem of aerial navigation and that the only obstacle that now stands in his way is the necessity of conscripting capital with which to put his airship upon a basis of commercial operation.

The new machine is modeled not on the bird principle, but rather upon that of the fish in the water. While a bird cannot remain at rest in the air, a fish can poise at perfect rest and can raise or lower itself by inflating or contracting its bladders. Mr. Cowdon bases his theory upon this idea.

He has also rejected the old balloon notion. The balloon, he argues, is entirely at the mercy of the wind and is compelled simply to drift with any current, thus being rendered practically useless for purposes of volitional transportation, but with his own machine Mr. Cowdon claims to be able to poise in the air at any distance from the ground and to rise and fall as softly as a feather would go to earth. He can with his apparatus, he declares, travel through the air at the rate of 100 miles an hour in the face of any current, and, what is more, the machine is always under the control of the engineer.

The Cowdon machine consists of three cigar shaped cylinders, two of which are placed on a level, and the third, which is midway between the two, is elevated several feet above them. These cylinders are filled with hydrogen or any similar gas and when inflated will have a lifting power in proportion to their size. They are so shaped as to present the least possible resistance to the wind and yet give a good surface for expansion of the gas.

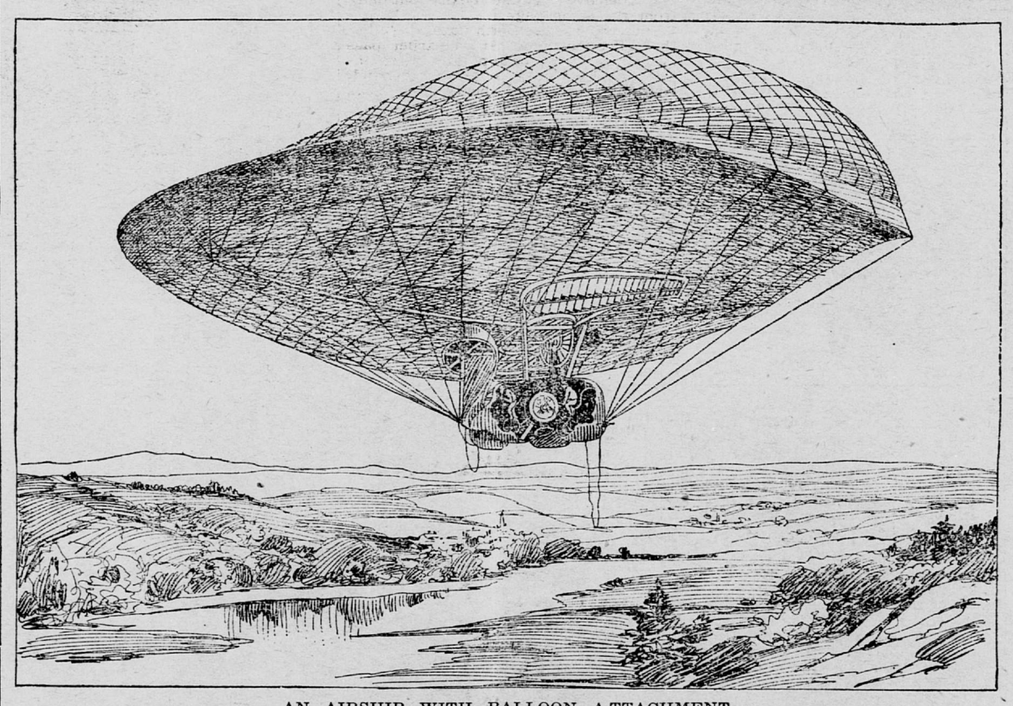
Few American inventors have up to now made any machine with cylinders. Though this idea has been adopted both by the French and Germans, who, it is conceded, are far ahead of us in aerial experiments, the inventors of both these nations have thus far used but a single cylinder. Mr. Cowdon's employment of three cylinders is for the purpose of giving steadiness to the machine, preventing any possibility of upsetting and reducing danger to the minimum.

The ends of the cylinder are fashioned in a telescopic way, so that the length can be increased or decreased by machinery. In this point lies the power to rise or fall at will. The lifting power of gas has been demonstrated to be increased in proportion as its surface area is increased, so that a lengthening of the cylinder gives a larger gas surface and causes a rise of the machine, a shortening in the length of the cylinder being followed by a corresponding decrease of surface and a consequent lowering toward the earth.

It is in the placing of the engine and propellers that Mr. Cowdon also claims to have developed an entirely new idea. In all of the models made in America and Europe the propellers have been placed in the rear. This is the case with the French machines, which can make a speed of only seven miles an hour, as an increase over that will cause a tilting of the ship on account of the uneven balance. The two propellers of the Cowdon machine, being at the ends, balance perfectly.

Just between each of the propellers and the engine are the two rudders which steer the affair in the face of the wind or enable the engineer to tack against it, as may be desired. The motive power, Mr. Cowdon expects, will be steam. He is experimenting with a new engine which gives enormous force with very little expenditure of coal. Electricity could also be used, but as both steam and electricity can be secured from very small engines of great power he will not decide this point until after several experiments.

Beneath the cylinders will hang the car containing the passengers. This car will be of wickerwork or some similar material and will hold about 20 people. Sections can also be reserved for the conveyance of express matter.



AN AIRSHIP WITH BALLOON ATTACHMENT.

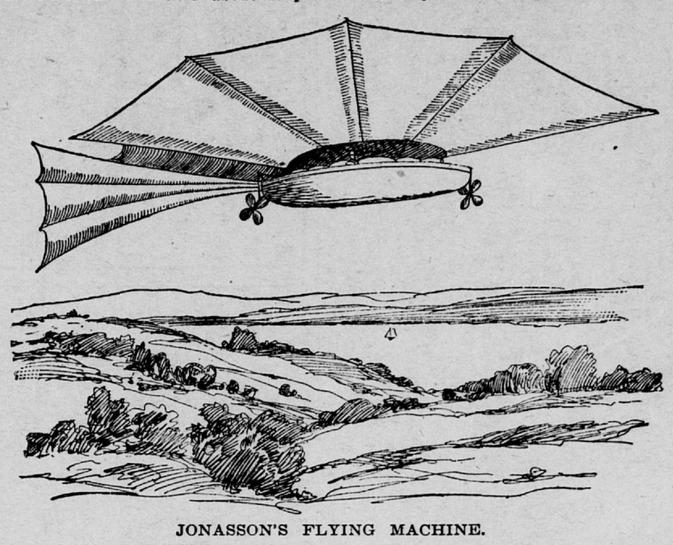
Another machine is the invention of Henry Nuhen of New York. He calls it a bicycle flying machine. "I tried for three years," said Mr. Nuhen, "everything that I could think of in the endeavor to secure some practical form of aerial transit. Everything failed, and at last I started to build a cigar shaped machine, with propellers on top and electricity for a motive power. This machine did fly for five or ten feet and then fell to the ground.

"In my next machine I used cigar shaped tubes built of aluminium, which contain compressed air and a secret fluid for which inventors have been hunting for years. I equipped the apparatus with a bicycle attachment.

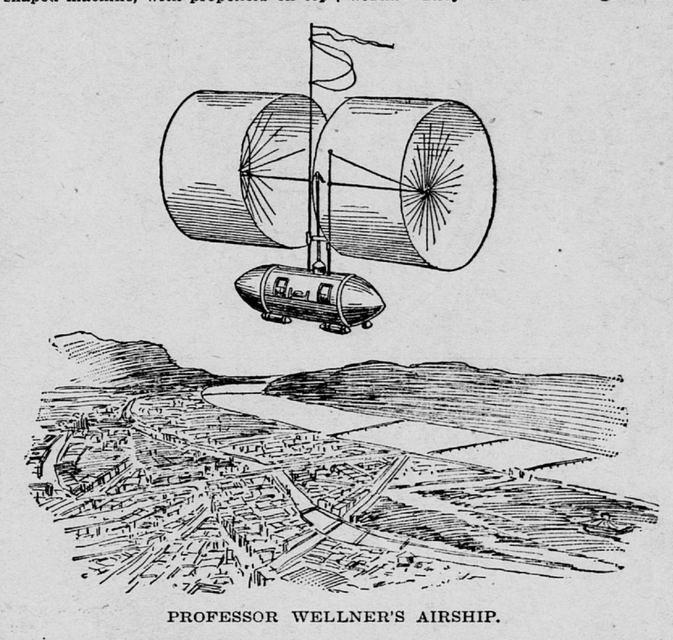
"In the model which I used the work been arranged to escape when the clock stopped, gave out, and the machine came to the ground."

Then there is a young man named Charles Sigors who has invented a flying machine which is to have a peculiar use. It is not an airship. It is merely a flying attachment to be fitted to a bicycle. Experiment has been made with this wonderful machine, and the results, the inventor says, make ordinary cycling seem as ancient and clumsy as a jolting journey in the wagons of our grandfathers.

The flying machine attachment is to be fastened to the handle bar of the bicycle. The wings will be of canvas stretched over aluminium frames. They will be 8 feet long and about 4 feet in width. They will be rectangular in



JONASSON'S FLYING MACHINE.



PROFESSOR WELLNER'S AIRSHIP.

shape, and one will be fastened on either side of the air cylinder, which will be in the center.

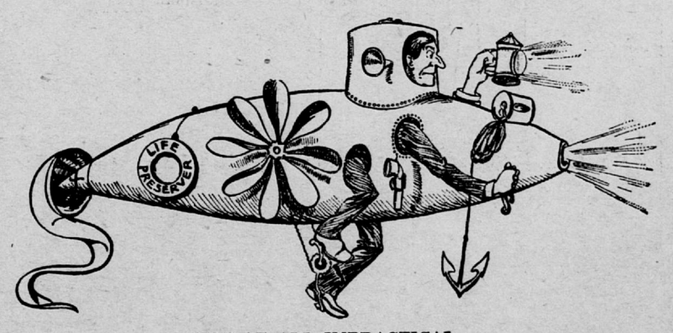
In the cylinder lies the secret of the success of the device. It will be 4 feet in length, with a diameter of 15 inches. It will be constructed of aluminium and some alloy of sufficient resistance to allow 100 pounds pressure of compressed air to the square inch.

The passing away of Professor Otto Lilienthal in Berlin in August last is sincerely mourned by all aeronauts and those interested in the flying problem, for he had made marvelous success with his machine. For over five years he had made short flights at intervals and was a daring and intrepid experimenter. His machine as described by himself "consists of a wooden frame covered with cotton twill shirting. The frame is taken hold of by the hands, the arms resting between cushions, thus supporting the body. The legs remain free for running and jumping. The steering in the air is brought about by changing the center of gravity. This apparatus I had constructed with supporting surfaces of 10 to 20 square meters. The larger sailing surfaces move in an incline of one to eight, so that one is enabled to fly eight times as far as the starting hill is high. The steering is facilitated by the rudder, which is firmly fastened behind in a horizontal and vertical position. The machines weigh, according to their size, from 15 to 25 kilograms (35 to 55 pounds)."

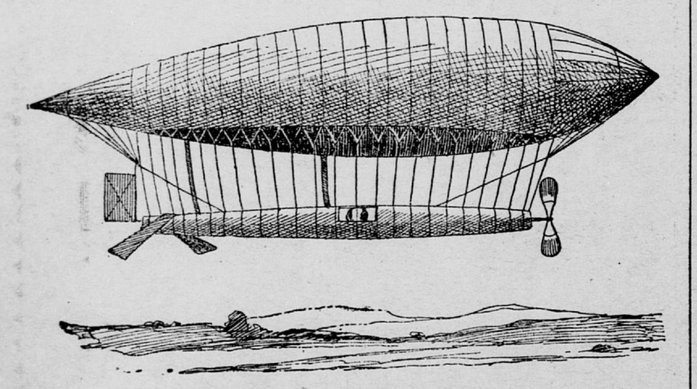
The experiments of Mr. Maxim, the inventor of the famous maxim gun, at Baldwyn's park, Bexley, England, have been very successful, and remarkable developments are looked for during the next few years. His machine is built on the kite principle with large propellers.

Professor Langley's machine is called an aerodrome. In May last he made a flight that was extremely successful. "No one could have witnessed these experiments," writes Professor Alexander Bell, "without being convinced that the practicability of mechanical flight has been demonstrated." Langley's machine is made of steel and driven by a steam engine. It resembles in form an enormous bird soaring the air with extreme regularity in large curves. At the trip last May the machine went a distance of a half mile in 1½ minutes.

The many stories in the newspapers recently in regard to the appearance of airships in different parts of the United States has stirred up the cranks on that subject, and Washington teems with men applying for patents.



NOT AT ALL IMPRACTICAL.



DR. WELLS' BALLOON.

Statesmen Will Play At Chess.

For some time past a spirited contest has been waged among the chess playing members of the house of representatives for the purpose of determining who should have the honor of being selected to represent the house in the forthcoming international chess match with a team picked from the members of the house of commons of the British parliament.

The first step toward the match was taken by a member of the British parliament a few weeks ago, just before the adjournment of the short session of the Fifty-fourth congress. Speaker Reed one day received in his mail a letter from the Britishers which stated that several of the members of the house of commons desired to arrange a friendly game of chess with a similar number of members of the house of representatives. Speaker Reed is not an authority on chess matters, but knowing that Congressmen Shannon of New York and Pearson of North Carolina were both much interested in the game he turned the communication over to them. They at once made a few inquiries among their fellow members and found that quite a number of them had played chess more or less and were willing to undertake a match with the Englishmen.

At a meeting of the enthusiasts which was called by Mr. Pearson a committee was appointed composed of the following men, who were instructed to reply to the informal challenge and arrange the details of the proposed contest: Congressman Richmond Pearson of Asheville, N. C., General Joe Wheeler of Alabama, General David B. Henderson of Iowa, Judge De Armond of Missouri, Richard C. Shannon of New York, Robert G. Cousins of Iowa and Claude Swanson of Virginia.

Mr. Pearson was nominated and elected as chairman and opened communications at once with Mr. J. Hennicker Heaton, who is acting as the manager for the British team.

Congressman Pearson, who is conducting the negotiations on this side of the water, will doubtless be the captain of the American team. In the general frying out process among the candidates of the house to determine who are the best players the North Carolinian has had little trouble in vanquishing them all. The Americans will be at a great disadvantage in selecting their team, as so many members of the house are new men, and it is therefore difficult to find out who are familiar with the game. The subject has been generally discussed on the floor of late, however, and it has been found that no less than 60 congressmen are more or less expert in manipulating the ivory figures.

General Shannon of New York is also an excellent player and is able to give Congressman Pearson the closest argument of the congressional contingent. Judge De Armond plays a careful and conservative game and passes many an evening with General Joe Wheeler at the latter's rooms over a chessboard. General Wheeler has not given much attention to the game of recent years, but when a young man he was able to give any one in his native town a stiff argument. His play is rapid and oftentimes brilliant in character.

Congressman Pearson has been making a strong effort to get General Henderson of Iowa to try for a place on the team. Cousins of Iowa, who also plays a good game of chess, says that out in Iowa General Henderson has the reputation of being the best player in the state.

Congressman Foote of New York is also known as a good chess player. He

CONGRESSMAN PEARSON.

is a general all round sportsman, taking great interest in all athletics. He is himself a fine athlete, having pulled an oar on a Columbia varsity crew, and besides is an expert with the gloves and foil. General Spaulding in the preliminary games has shown himself to be a careful player, and Congressman Beach of Ohio moves the men about the board with great skill. Bodine of Missouri and Shafroth of Colorado make a good pair, and Parker of New Jersey is a clever player.

Congressman Pearson has received the names of the men who are to represent the house of commons in the coming match. They are Mr. Arthur Strauss, member for Cornwall; Mr. Horace Curzon-Plunkett, member for the south division of Dublin county; Mr. Arthur Atherley Jones, member for the northwest division of Durham, and Mr. John Howard Parnell, brother of the late John Stewart Parnell, member for Southmeath. These four will select another man, who will probably be either F. W. Wilson or Charles Shaw.

This is said to be an excellent team, most of whom are veterans at the game, and they will therefore have an important advantage over their American opponents, who know practically nothing of the habits of play of their fellow members. The British team recently played a match with the Quill club of London, an organization composed of newspaper men, and defeated them handily by the score of 4½ to 2½ games.

BEASTS, BIRDS AND FISH.

Where do the swallows of England go for the winter? Some go to Rome, some to Nice and Monaco, some to Algiers and some to Egypt. A naturalist who tied bits of red silk to swallows caught in England identified one of the same birds in the neighborhood of the pyramids.

Some idea of the terrific force with which a bird passes through the air may be gained through the fact that a short time ago a common curfew flew right through a piece of plate glass a quarter of an inch thick at Turnberry lighthouse, Ayrshire.

The famous black Arab horse of General Boulanger is now being driven in a cab, and visitors to the stables of the Pasteur institute at Garches can see the former charger of Marshal Canrobert, which figured so prominently at the funeral of the last of the French marshals. This charger is now used for the production of serum, and so far the noble animal has given 80 liters (about 140 imperial pints) of his blood in the cause of suffering humanity.

An inventor proposes to scare away rats, moles, etc., by placing about artificial figures of cats made of plaster or terra cotta and having eyes of phosphorescent material.

A good story of a duck comes from Chideock. Frequenting an orchard, the bird found plenty of apples lying about, and, mistaking these for eggs, she collected 18 into a nest and sat on them for a whole fortnight in the expectation of producing a brood of ducklings.

Those who have partaken of peacock declare that gorgeous bird to be decidedly tough eating, while it is said of the swan that the fact of its ever having been a familiar dish speaks highly in favor of ancient English cutlery.

Robert Bonner mentions the striking fact that when he bought his first trotting horse, in 1856, only 19 horses, living and dead, had trotted a mile in 2:30. Now there are more than 13,000 on the list.

Among birds there are few better fighters than a goose, or a gander more particularly. The ragged, white Russian geese bite ferociously. It is not a mere peck with them. They bite and hang on with all the tenacity of a bulldog.

The nest which is made into soup and eaten by the Chinese is that of a bird closely allied to the swift. The nests are made of a gelatinous secretion from the mouth of the bird.

It is estimated that about 250,000 canaries are raised every year in Germany. The most important market is the United States, which imports over 100,000 birds per annum.

Baron Finot's St. Claude, winner of the grand steeple chase at Auteuil in 1890, is among the inmates of the Pasteur stables at Garches, while General Gallifet's charger, although in the best of health, is daily the subject of scientific experiments.

A new species of rabbit has been found in Mexico at an altitude of 9,000 feet, on the volcano Popocatepetl. It is very small and has short ears and no tail.

There are nearly 400 varieties of humming birds.

Prince Albert of Thurn and Taxis is spending on his clothes the fortune accumulated by his ancestors while they held the monopoly of the post as hereditary grand postmasters of the Holy Roman Empire. He wears a new suit, perfumed with attar of roses, every day, spending $15,000 annually on his tailor, who keeps 20 employees constantly at work for him. He puts on a new necktie three times a day and uses up 200 pairs of boots a year. He spends $1,000 a year on cigarettes and $75,000 on sports. The prince is 30 years of age and is married to an Austrian archduchess.

Menelek's capital will soon have all the attractions of Paris. The negus has ordered from a Meiningen artist a panorama of the defeat of the Italians.